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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/015,826	12/10/2001	Guy Riddle	6533/53657	5159

30505 7590 07/26/2005

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EXAMINER	
PHAN, TAM T	

ART UNIT	PAPER NUMBER
2144	

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/015,826	RIDDLE, GUY	
	Examiner	Art Unit	
	Tam (Jenny) Phan	2144	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Amendment received on 04/26/2005 has been entered. Claims 1, 3, 9-10, 12, 14-15, 20, and 29 are currently amended.

2. Claims 1-29 are presented for examination.

Priority

3. No priority claims have been made.

4. The effective filing date for the subject matter defined in the pending claims in this application is 12/10/2001.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 1 recites the limitation "the identified network device" in the last line. There is insufficient antecedent basis for this limitation in the claim. Claims 2-14 depended on the rejected claim and therefore are also rejected.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acharya et al. (U.S. Patent Number 6,829,709), hereinafter referred to as Acharya in view of Weldon et al. (U.S. Patent Number 6,366,563), hereinafter referred to as Weldon, and further in view of Ylonen (U.S. Patent Number 6,795,917).

10. Regarding claim 1, Acharya disclosed a method allowing for dynamic detection of network devices located along a communications path that include compatible transformation tunnel capabilities (column 3 line 66-column 4 line 9, column 4 lines 45-51, column 5 lines 30-48), at least one of the network devices operative to recognize probe requests and transmit a probe response including transformation tunnel capabilities in response to the probe request (column 2 lines 16-36, column 4 lines 52-65, column 5 lines 30-48, column 8 lines 54-65), the method comprising the steps of: identify network devices having compatible transformation tunnel capabilities (column 2 lines 16-36, column 5 lines 30-48, column 7 lines 29-40); and, if a network device is identified, transforming subsequent data flows, or subsequent packets in the first data flow, to the destination host from a first state to a second state and tunneling the data flows, or the subsequent packets in the first data flow, to the identified network device (column 2 lines 16-36, column 4 lines 1-10, lines 52-65, column 5 lines 30-48).

11. Acharya taught the invention substantially as claimed. However, Acharya did not expressly teach a method of detecting a first data flow to a destination host and probing the path to the destination host to identify network devices having compatible transformation tunnel capabilities.

12. Acharya suggested exploration of art and/or provided a reason to modify the method of Acharya with probing feature to identify network devices along the communication path (column 2 lines 17-27, column 8 lines 48-65).

13. Weldon disclosed a method of detecting a first data flow to a destination host and probing the path to the destination host to identify network devices having compatible transformation tunnel capabilities (Figure 2 signs 204, 207, column 4 lines 16-31, column 5 lines 25-55).

14. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the method of Acharya with the teachings of Weldon to include the probing the communication path feature in order to offer flexibility and scalability features that would allow for independent upgrading and maintenance of the shared network since network operators do not need to manually secure IPSec tunnels for each of the IP nodes required to communication over the network (Weldon, column 6 lines 54-67).

15. The combination of Acharya and Weldon taught the invention substantially as claimed. However, the combination of Acharya and Weldon did not teach probing the path to the destination host to *discover the network address* of at least one of the network devices having compatible transformation tunnel capabilities and *if a network address of a network device is discovered* in the probing step, performing transformation process to the subsequent data flows or packets in the first data flow and tunneling the data flows or packets in the first data flow to the discovered network device.

16. Weldon suggested exploration of art and/or provided a reason to modify the combination of Weldon and Acharya with additional features such as probing the path to discover the network address of available network devices (Figure 2 signs 204, 207, column 4 lines 16-31, column 5 lines 25-55, column 12 lines 34-39).

17. Ylonen disclosed a method for packet authentication in the presence of network address translations and protocol conversions comprising probing the path to the destination host to discover the network address of at least one of the network devices having compatible transformation tunnel capabilities (Abstract, Figures 6-9, column 4 lines 22-36, column 5 line 62-column 6 line 7) and if a network address of a network device is discovered in the probing step, performing transformation process to the subsequent data flows or packets in the first data flow and tunneling the data flows or packets in the first data flow to the discovered network device (Figures 6-9, column 13 lines 56-67).

18. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the combined method of Acharya and Weldon with the teachings of Ylonen to include the discover the network address feature in order to offer flexibility and scalability features that would allow for independent upgrading and maintenance of the shared network (Weldon, column 6 lines 54-63). With the use of probing routers, it is possible to easily scale a VPN according to customer requirements (column 6 lines 63-67).

19. Regarding claim 2, Weldon disclosed a method wherein the probing step comprises the steps of transmitting a probe request to the destination host; and

receiving a probe response from a network device in the path to the destination host (column 3 lines 3-27, column 5 lines 37-55).

20. Regarding claim 3, Acharya disclosed a method further comprising the step of transforming, at the discovered network device, the data flows from the second state [transformation] to a third state [inverse transformation]; and transmitting the data flows to the destination host (column 4 lines 45-51, column 5 lines 30-40).

21. Regarding claim 4, Acharya disclosed a method wherein the third state is substantially the same as the first state [re-transformation] (column 4 lines 45-51, column 5 lines 30-40).

22. Regarding claim 5, Weldon disclosed a method wherein the probing step is conditioned on detection of a threshold level of activity associated with the destination host (column 4 lines 16-31, column 11 lines 21-42).

23. Regarding claim 6, Weldon disclosed a method wherein the threshold level of activity comprises a minimum number of data flows to the destination host over an analysis interval (column 11 lines 21-42).

24. Regarding claim 7, Weldon disclosed a method wherein the threshold level of activity comprises a minimum number of bytes transmitted to the destination host over an analysis interval (column 11 lines 21-42).

25. Regarding claim 8, Weldon disclosed a method wherein the threshold level of activity comprises a minimum average data flow rate associated with the destination host over an analysis interval (column 11 lines 21-42).

26. Regarding claims 9-10, Weldon disclosed a method further comprising the step of selecting the network device furthest along the path to the destination host, if a

plurality of network devices are identified in the probing step (column 3 lines 36-53, column 11 line 65-column 12 line 14).

27. Regarding claim 11, Acharya disclosed a method wherein the responding network devices transmit probe responses in response to probe requests, wherein the probe responses are TCP/IP packets including a predefined Time-To-Live value; and the selecting step is determined on the basis of the Time-To-Live values of the probe responses transmitted by the plurality of network devices (column 7 line 62-column 8 line 22).

28. Regarding claim 12, Acharya disclosed a method wherein the transforming step comprises compressing data associated with the data flows in a format the discovered network device can decompress (column 1 lines 26-30, column 4 lines 1-9, lines 45-51).

29. Regarding claim 13, Acharya disclosed a method wherein the transforming step comprises caching data associated with the data flows [servers, routers, firewalls, etc. were well-known devices at the time of the invention was made to have caching functionalities] (column 3 line 66-clumn 4 line 9).

30. Regarding claim 14, Acharya disclosed a method wherein the transforming step comprises encrypting data associated with the data flows in a format the discovered network device can decrypt (column 1 lines 26-30, column 4 lines 1-9, lines 45-51).

31. Regarding claim 15, Acharya, Weldon, and Ylonen combined disclose a method allowing for optimization of communications paths associated with a computer network by dynamic detection of network devices located along a communications path that include compatible transformation tunnel capabilities (Acharya, column 3 line 66-column 4 line 9, column 4 lines 45-51, column 5 lines 30-48), at least one of the network

devices operative to recognize probe requests and transmit a probe response including transformation tunnel capabilities in response to the probe request (Acharya, column 2 lines 16-36, column 5 lines 30-48, column 7 lines 29-40), the method comprising the steps of: detecting a data flow to a destination host; if the path to the destination host has not been probed, then probing the path to the destination host to identify network devices having compatible transformation tunnel capabilities (Weldon, Figure 2 signs 204, 207, column 4 lines 16-31, column 5 lines 25-55); and, associating a network device identified in the probing step with the destination host; and, if a network device is associated with a destination host, transforming data flows to the destination host from a first state to a second state and tunneling the data flows to the associated network device (Acharya, column 2 lines 16-36, column 4 lines 1-10, lines 52-65, column 5 lines 30-48). Ylonen disclosed a method for packet authentication in the presence of network address translations and protocol conversions comprising probing the path to the destination host to discover the network address of at least one of the network devices having compatible transformation tunnel capabilities (Abstract, Figures 6-9, column 4 lines 22-36, column 5 line 62-column 6 line 7) and if a network address of a network device is discovered in the probing step, performing transformation process to the subsequent data flows or packets in the first data flow and tunneling the data flows or packets in the first data flow to the discovered network device (Figures 6-9, column 13 lines 56-67).

32. Regarding claims 16-21, the limitations of these claims are similar to the claimed limitations of claims 2-5 and 10-11, and thus these claims are rejected using the same rationale.

33. Regarding claim 22, Acharya, Weldon, and Ylonen combined disclose an apparatus allowing for automatic detection of network devices located in a communications path that include compatible transformation tunnel capabilities (Acharya, column 3 line 66-column 4 line 9, column 4 lines 45-51, column 5 lines 30-48), comprising: a packet processor operably connected to a computer network to monitor data flows traversing communication paths associated with the computer network to respective destination hosts (Weldon, Figure 2, column 5 lines 25-55); a transformation tunnel mechanism including transformation tunnel capabilities operative to transform data flows from a first state to a second state (Acharya, column 2 lines 16-36, column 4 lines 1-10, lines 52-65, column 5 lines 30-48); wherein the transformation tunnel mechanism is further operative to establish a tunnel with a network device having compatible transformation tunnel capabilities located in a communications path associated with the computer network (Acharya, column 4 lines 36-51, column 5 lines 30-48); a probe module operative to probe for network devices along communications paths to destination hosts that include compatible transformation tunnel capabilities in response to data flows detected by the packet processor (Weldon, Figure 2, column 5 lines 25-55); wherein the probe module is further operative to obtain the network address of a network having compatible transformation tunnel capabilities (Ylonen, Abstract, Figures 6-9, column 4 lines 22-36, column 5 line 62-column 6 line 7, column 13 lines 56-67); wherein the probe module is operative to associate destination hosts with respective network devices along communication paths thereto having compatible transformation tunnel capabilities (Weldon, column 5 lines 25-55); wherein the packet processor is further operative to channel data flows to the transformation tunnel

mechanism, wherein the channeled data flows are bound for destination hosts associated with network devices identified by the probe module (Weldon, Figure 2, column 5 lines 25-55; Acharya, column 5 lines 30-48);

34. Regarding claim 23, Weldon disclosed an apparatus wherein the probe module is operative to transmit probe requests along communication paths to destination hosts in response to new data flows, and wherein the probe request causes compatible network devices along the path to communicate transformation tunnel capabilities to the apparatus (column 5 lines 38-55, column 2 lines 47-67, column 10 lines 41-50).

35. Regarding claim 24, Weldon disclosed an apparatus wherein the packet processor is operative to identify new destination hosts associated with data flows and store the computer network address of the destination host in a database (Figure 6 sign S607, column 3 lines 3-27, column 5 lines 25-37).

36. Regarding claim 25, Weldon disclosed an apparatus wherein the probe module stores network devices having compatible transformation tunnel capabilities in the database in association with corresponding destination hosts (Figure 6 sign S607, column 3 lines 3-27, column 5 lines 25-37).

37. Regarding claim 26, Acharya disclosed an apparatus further comprising a traffic class engine operative to classify data flows traversing the packet processor into one of a plurality of traffic types; wherein traffic types associated with data flows are operative to condition the operation of the probe module with respect to the destination hosts associated with such data flows (column 1 lines 26-47, column 4 lines 45-51, column 5 lines 30-48).

38. Regarding claim 27, Acharya disclosed an apparatus further comprising a traffic class engine operative to classify data flows traversing the packet processor into one of a plurality of traffic types; wherein the traffic types associated with the data flows are operative to condition the channeling of such data flows to the transformation tunnel mechanism (column 1 lines 26-47, column 4 lines 45-51, column 5 lines 30-48).

39. Regarding claim 28, Weldon disclosed an apparatus wherein traffic types associated with data flows are further operative to condition the operation of the probe module with respect to the destination hosts associated with such data flows (column 5 lines 25-37).

40. Regarding claim 29, the system corresponds to the apparatus of claim 22, and thus these claims are rejected using the same rationale. In addition, Ylonen disclosed wherein the probe module is further operative to obtain the network address of a network device having compatible transformation tunnel capabilities (Ylonen, Abstract, Figures 6-9, column 4 lines 22-36, column 5 line 62-column 6 line 7, column 13 lines 56-67) and Acharya disclosed a system wherein at least one network device operably connected to the computer network (Figures 1-2), wherein the network device comprises a transformation tunnel mechanism including at least one transformation tunnel capability (column 4 lines 1-10, column 5 lines 30-48); wherein the network device is operative to communicate transformation tunnel capabilities to the tunnel probing device in response to probe requests (column 4 lines 36-51, column 5 lines 30-48).

41. Since all the limitations of the claimed invention were disclosed by the combination of Acharya, Weldon, and Ylonen, claims 1-29 are rejected.

Response to Arguments

42. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection.

43. As the rejection reads, Examiner asserts that the combination of these teachings render the claimed invention obvious.

Conclusion

44. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

45. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Refer to the enclosed PTO-892 for details.

46. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tam (Jenny) Phan whose telephone number is (571) 272-3930. The examiner can normally be reached on M-F 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tam T. Phan
July 12, 2005
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